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Cir. 71

TREND OF THE CHEESE INDUSTRY IN THE UNITED STATES AND OTHER COUNTRIES

SIMPLE CHARTS WITH INTERPRETATIONS

T. R. PIRTLE
Dairy Division

UNITED STATES DEPARTMENT OF AGRICULTURE
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JOHN R. MOHLER, Chief

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GUIDE FOR READING THE CHARTS.

The charts are for the purpose of showing trend, variation, and quantity during a period of years.

The charts are constructed above the base, or zero line; therefore, all quantities are read as starting from that line.

Single and double shading is used to give distinction and express volume.

The scale on the margin should be noted before reading a chart or comparing it with another.

An accurate comparison of two charts may be made by tracing one on tissue paper, laying it over the other, and noting the variations.

Census years express the production of the previous year.

TREND OF THE CHEESE INDUSTRY IN THE UNITED STATES AND OTHER COUNTRIES.

As an article of commerce cheese includes a wide variety of types. Italy produces about 30 kinds of cheese having commercial importance, and several other countries produce fully half that number, each having distinct characteristics.

In general the types made in European countries differ from those with which Americans are most familiar. In fact, until lately, the production of some of the rarer types of cheese was considered possible only under certain natural conditions. But investigations show that climatic conditions and the importance of such a factor as a certain kind of feed grown at a certain altitude have been overemphasized. With proper methods and equipment many of the so-called foreign cheeses can be made in the United States and elsewhere. Thus, although in the past the cheeses of different countries have varied greatly in general characteristics and are not directly comparable, a knowledge of the trend of the industry throughout the world should be useful to dairymen of the United States.

In this country the principal variety is American Cheddar cheese, put up in various styles. Its production began at the time of the early settlements, though at that period it was made in the home, usually in small quantities and with rude equipment. By 1790 the United States was exporting annually more than half a million pounds of cheese, which was assembled from farms and lacked uniformity. For the next 50 years United States exports of cheese varied slightly above and below a million pounds annually.

Shortly after 1840 the first curd factories and cheese factories were established and exports increased rapidly, reaching 17 million pounds in 1849. Twenty years later about two-thirds of the cheese was made in factories, and at the present time only a small quantity of cheese in the United States is made on the farms. The use of improved equipment and scientific methods in factories have made it more and more difficult for farm-made cheese to compete with the factory product.

CHEESE PRODUCTION.

The decrease of farm-made cheese and the striking development of the factory system are apparent from the chart. Farm-made cheese is now used mostly for local consumption and can scarcely be found on the markets except, as in California, where large herds make it possible to use factory methods on farms and ranches. At

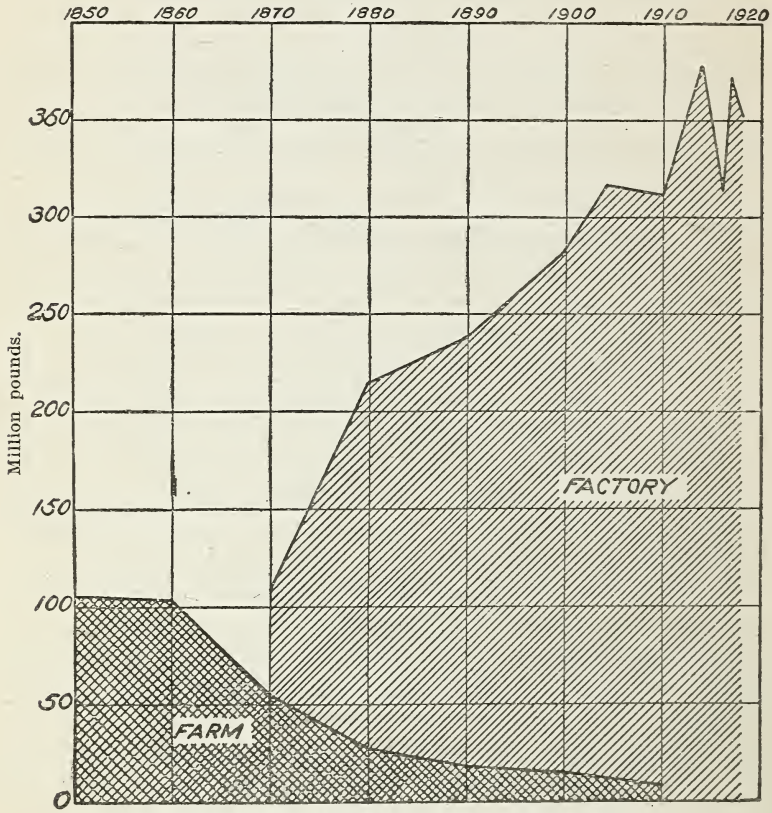

FIG. 1.—United States. Farm and factory cheese production.

the time of the last census, in 1910, its production was the lowest of all periods of record. At the present time it may be said that practically all commercial cheese in the United States is made in factories, which number about 4,000. The industry is most thoroughly established in Wisconsin and New York, which have considerably more than half the total number of cheese factories in the United States.

The extent to which cheese production in the United States has exceeded exports is readily observed. High prices, obtained abroad between 1860 and 1880, caused a rapid increase in exports. That condition and the general advance of prices in home markets are undoubtedly responsible for the striking rise in production during those years. But even after the foreign trade declined, pro-

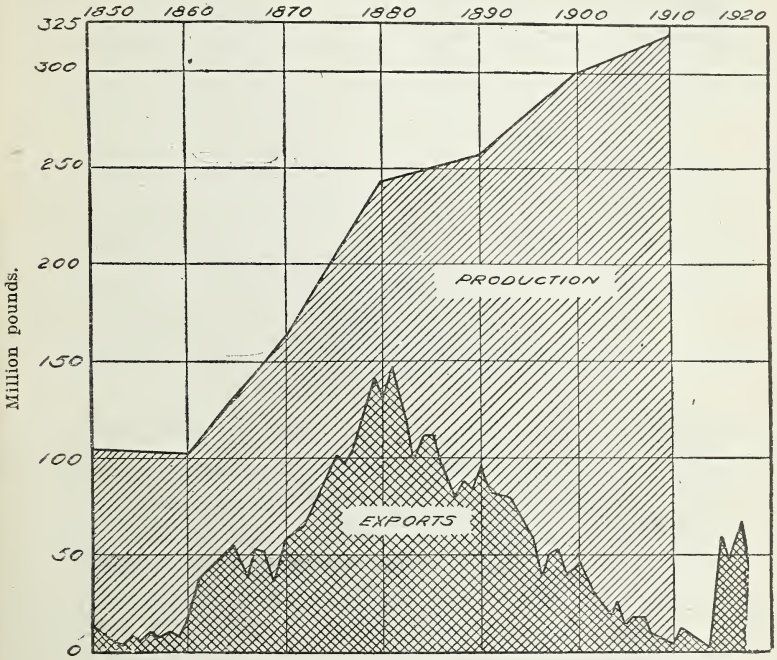

FIG. 2.—United States. Total production and exports.

duction continued to increase, the consequence, it is believed, of a gradually increasing population and a greater per capita consumption. The line showing the trend of production is based on census figures (taken in the United States every 10 years) while that for exports is based on annual commerce records. As a result the latter is a more irregular line and the fluctuations in the trend may be seen in considerable detail.

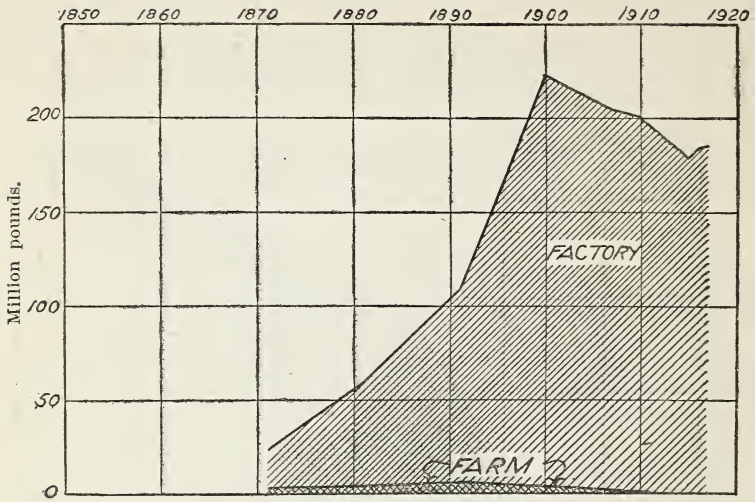

FIG. 3.—Canada. Farm and factory cheese production.

The proportion of farm-made cheese to the factory product is extremely small, even smaller than in the United States. The tendency of the factory production to increase has been similar in the two countries. In 1865 there were not a dozen cheese factories in Canada. In 1870 the number had increased to 353 factories and in 1891 to 1,865 factories. The Government furnished experts to train the operators of the new cheese factories. Subsidies were granted to factories established in approved localities.

As in the chart showing United States cheese production, it must be remembered that the figures are chiefly for 10-year periods and the intermediate years may have shown fluctuations. For instance, figure 11 shows Canadian cheese exports to have exceeded 220,000,000 pounds between 1900 and 1910. Obviously, production figures for that time, if obtainable, would have shown a rise in that decade to include the high peak of exports. A comparison of the two charts (figs. 3 and 11) shows a similarity in size and shape, indicating that Canada exports a very large part of its cheese.

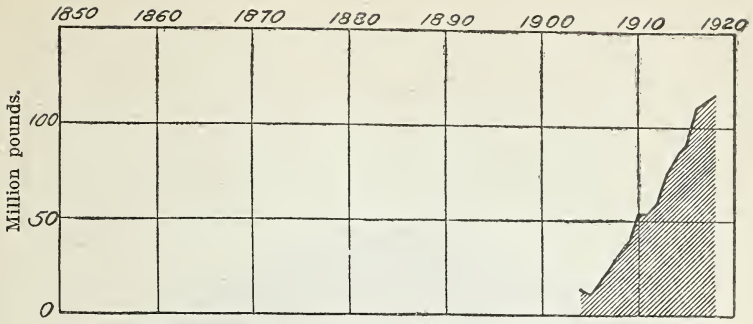

FIG. 4.—New Zealand. Cheese production.

The cheese production in New Zealand has increased very rapidly since 1904 and corresponds very closely to the decline in exports of the Canadian cheese. (See fig. 11.) The cheese is practically all Cheddar, and the surplus is exported almost entirely to the United Kingdom.

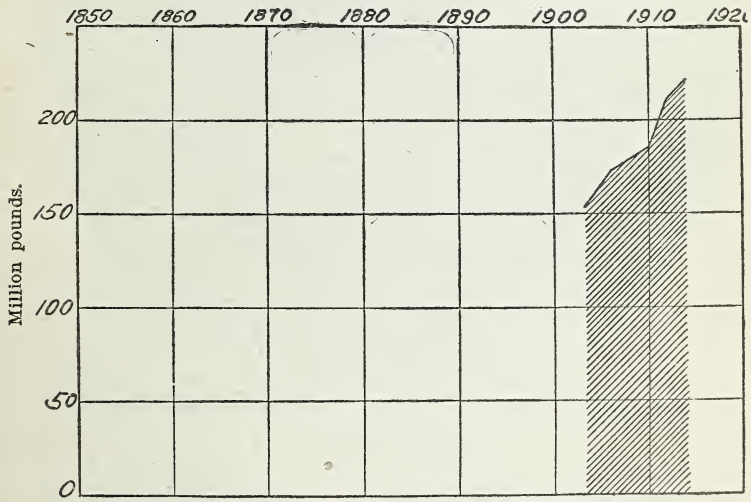

FIG. 5.—The Netherlands (Holland). Cheese production.

Although the export trade of the Netherlands has exceeded 40 million pounds annually since 1850, and indicates large production, the earliest definite records of production available are for 1903. From that date until as late as 1915 the trend has been upward. Since about 1910 the Netherlands has produced almost as much cheese as the United States (Italy being the only country producing more). The Netherlands output is a striking example of the possibilities of intensive dairying, for in spite of her small area she also produces and exports considerable quantities of butter.

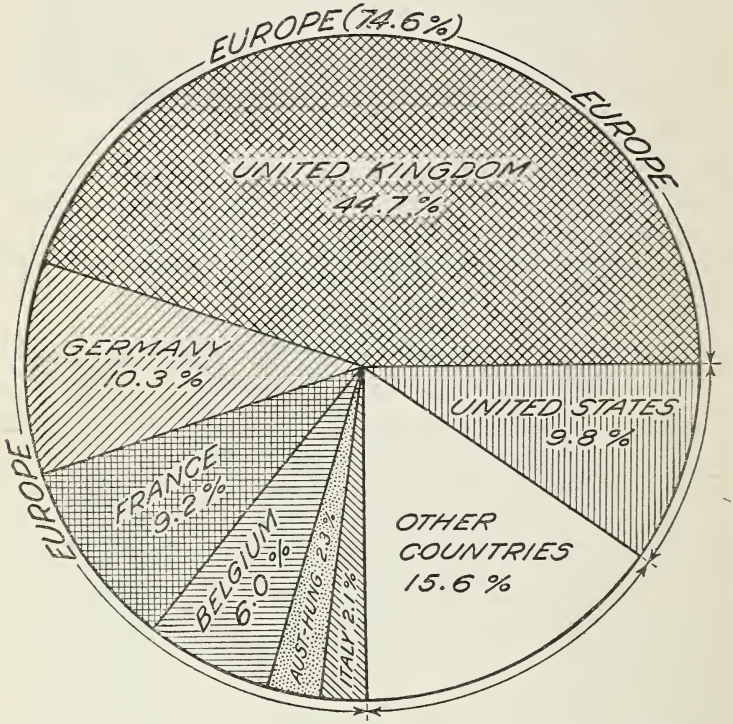

FIG. 6.—International cheese trade. Imports. (Prewar, 1913.)

CHEESE TRADE.

The chart shows the relative proportion of cheese imported by various countries and is for 1913, the last year of normal trade conditions before the war. That year the United States took about one-tenth of the world's import-cheese trade and ranked third as a cheese-importing nation. Most of the cheese came from western Europe and from Italy and Canada.

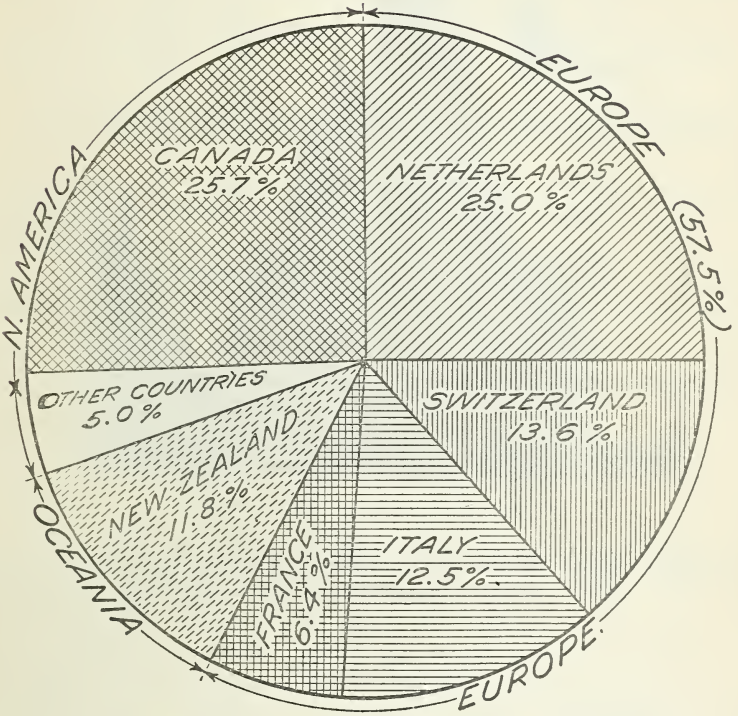

FIG. 7.—International cheese trade. Exports. (Prewar, 1913.)

The export-cheese trade shown in the chart also is for 1913, the last normal year. Canada is the principal cheese-exporting country in the Western Hemisphere and contributed more than one-fourth of the world total. The share of the United States was too small to be charted and is included among "Other countries." It will be observed by comparing the import and export charts that France and Italy both exported and imported considerable quantities of cheese, which was largely an exchange of varieties.

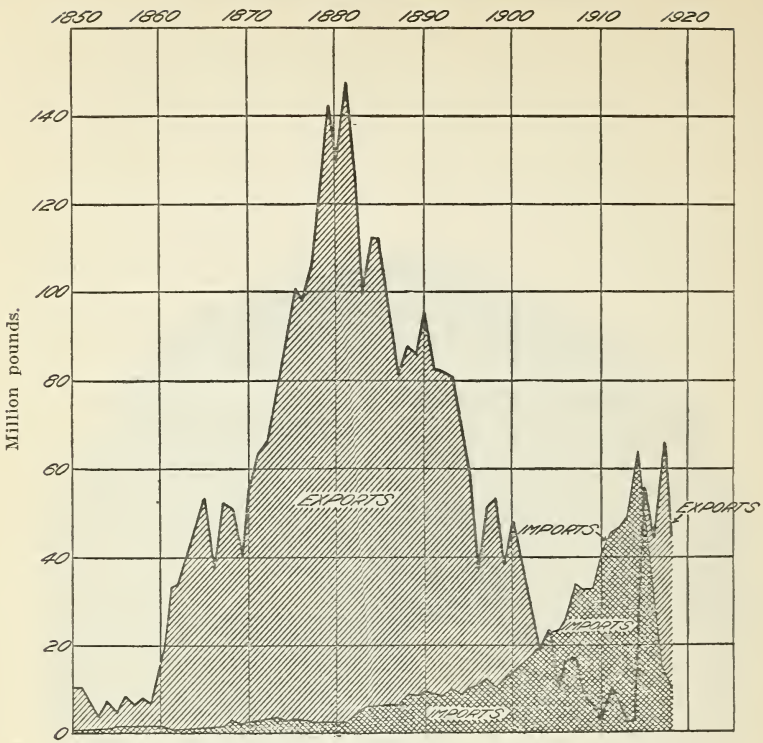

FIG. 8.—United States. Cheese trade.

The cheese trade of the United States is one of wide fluctuation. About 1881, after the first 30 years of cheesemaking on a factory scale, this country reached the peak of its export trade, about 148 million pounds, with imports negligible. Thirty years later exports had ebbed almost away and imports had increased to about 40 million pounds annually.

The decline of the United States cheese trade following 1881 was undoubtedly started by the adulteration of cheese with oleo oil and similar fats. The resulting cheese became known as "Filled" or "Oleo" cheese (more fully discussed on p. 11). The fraudulent sale of this product caused suspicion of all "States" cheese in foreign markets with results extending practically to the present time.

The importation of cheese has been increasing ever since 1850, but the increase became more rapid after 1900. These importations include generally the highest qualities of special varieties of cheese and are attributable partly to the demands of immigrants from Europe for familiar types and partly to the popularity of those cheeses among hotel and restaurant patrons. The recent revival of exports was principally a war condition.

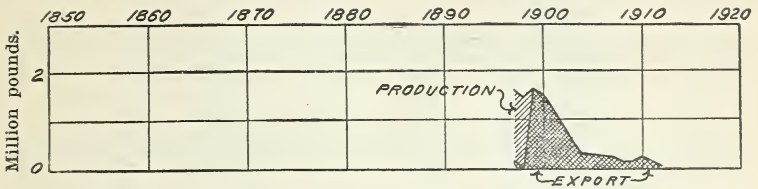

FIG. 9.—United States. Filled cheese. Production and exportation. (Note that scale at left-hand margin is 10 times greater than in fig. 8.)

The making of "filled" cheese began about 1870, in central New York State. It was made largely from oleo oil and skimmed milk and could be produced at that time for 4 to 5 cents a pound, about one-fourth the wholesale cost of genuine American whole-milk cheese. Extensive advertising and large profits were factors which contributed to increase the output, which soon exceeded a million pounds a year. A Federal law of 1896, levying a tax on the production of filled cheese, also required that records of production and export be made. Most of the filled cheese was exported so long as there was a demand in foreign markets for the article. There has been no record of production in the United States, however, since 1912. In general the "filled" cheese trade, though profitable to a few persons for a short time, had an injurious effect on our entire cheese industry by injuring the reputation of American-made cheese.

COMPARISON OF UNITED STATES, CANADA, AND NEW ZEALAND CHEESE EXPORTS.

A comparison of the exports of cheese from the United States, Canada, and New Zealand from 1850 to the present time is shown in the chart. The principal market has been the United Kingdom. The United States had the market first; Canada took it when the United States failed to satisfy the demands; and finally New Zealand took

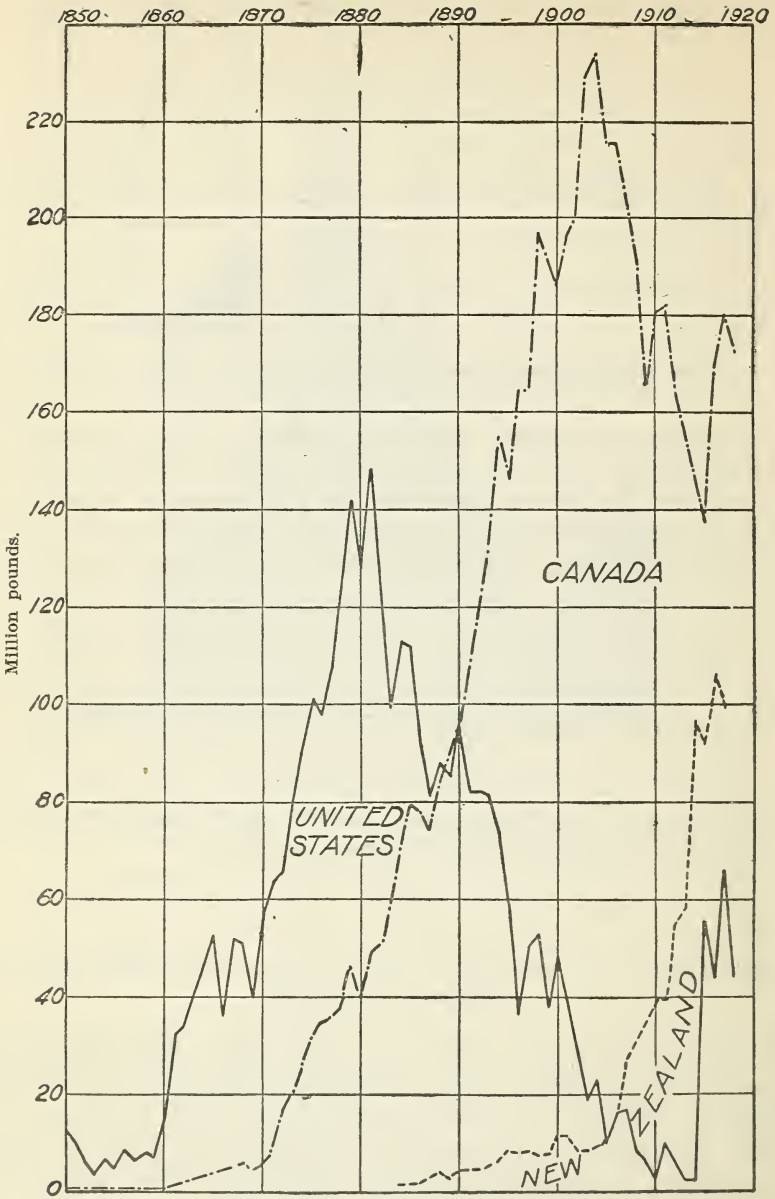

FIG. 10.—Comparison of United States, Canada, and New Zealand cheese exports.

a large part when the Canadian cheese production decreased and the home consumption increased. During the war all three countries supplied Great Britain and her allies with their available surplus cheese. This interesting chart shows clearly how one nation may take over the trade which another has built up but failed to retain.

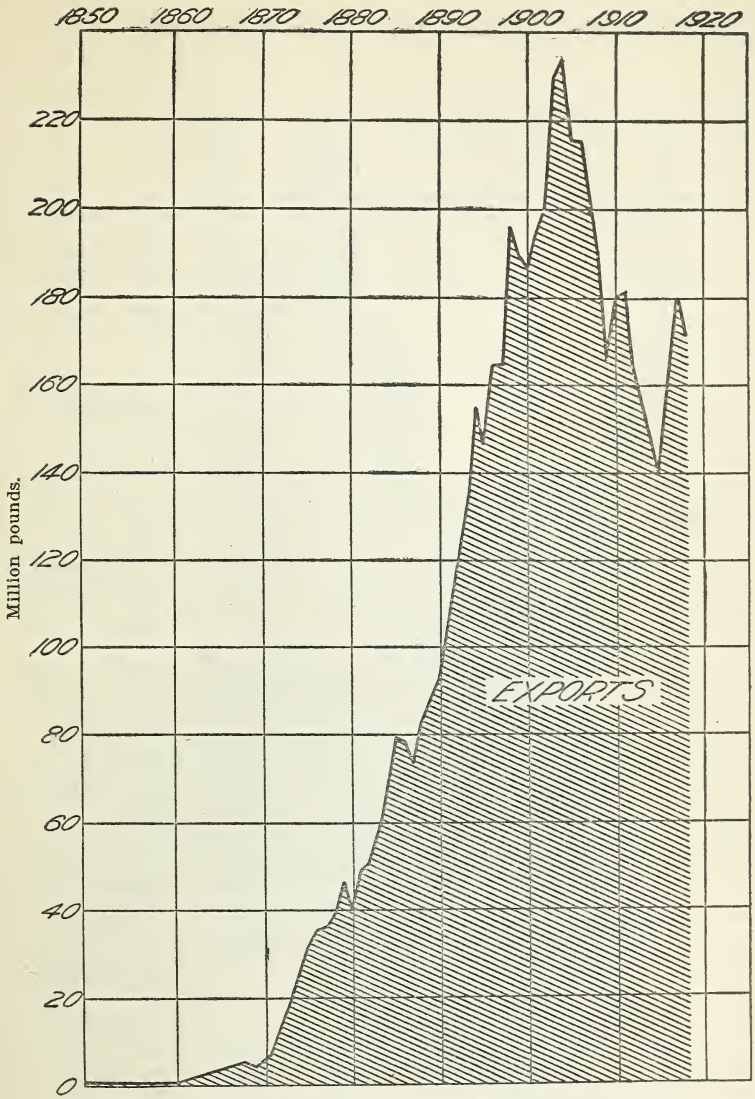

FIG. 11.—Canada. Cheese trade.

The abrogation of the reciprocity treaty of 1854, under which Canada purchased cheese from the United States for 10 or 12 years, caused Canada to begin the factory production of cheese more extensively. Factory methods were already well established at that time, and inspectors from England made Canadian cheesemakers familiar with the quality of cheese desired by the mother country. Under such encouragement cheese production increased rapidly, and in 1903 and 1904 the exports each year exceeded 220 million pounds.

The production decreased considerably after 1904, as other branches of the dairy industry drew heavily on the available supply of milk.

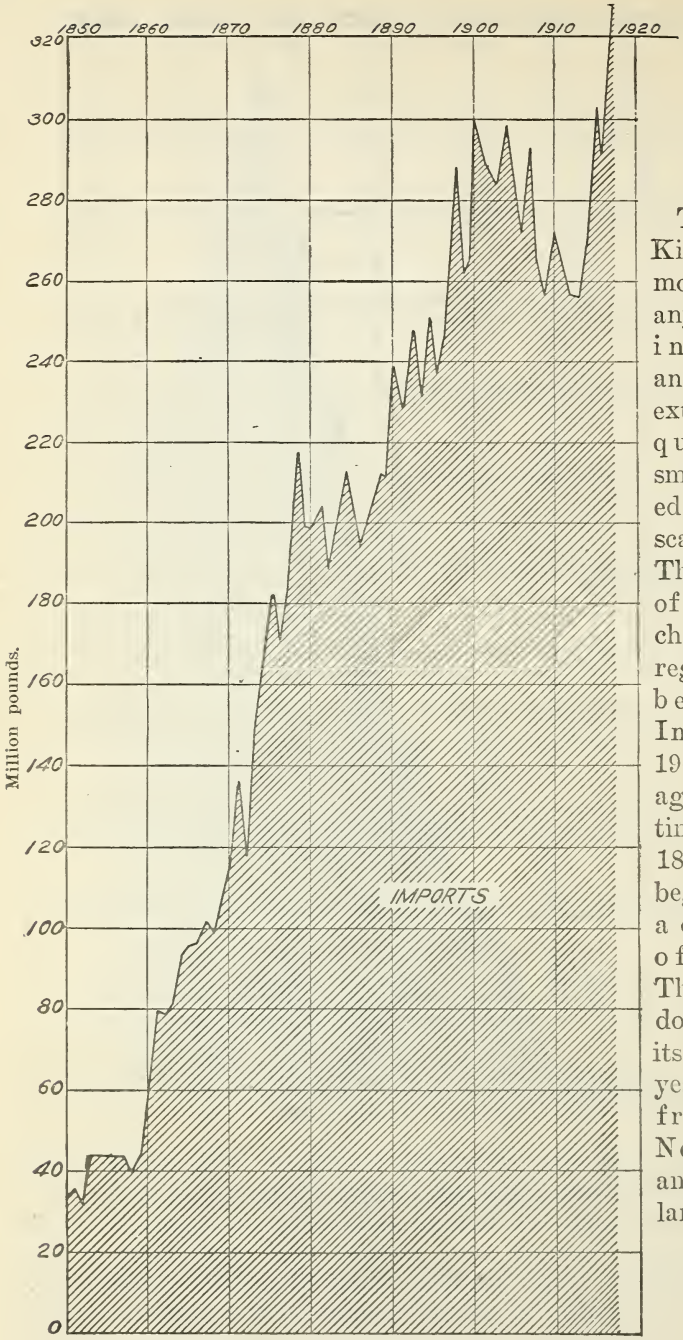

FIG. 12.—United Kingdom (England, Scotland, Wales, and Ireland). Cheese trade.

The United Kingdom imports more cheese than any other nation in the world and exports an extremely small quantity, too small to be charted on the same scale as exports. The general trend of the import-cheese trade is regular and has been upward. Imports since 1900 have averaged about seven times those of 1850, when cheese began to become a common article of commerce. The United Kingdom has obtained its cheese in recent years principally from Canada, New Zealand, and the Netherlands.

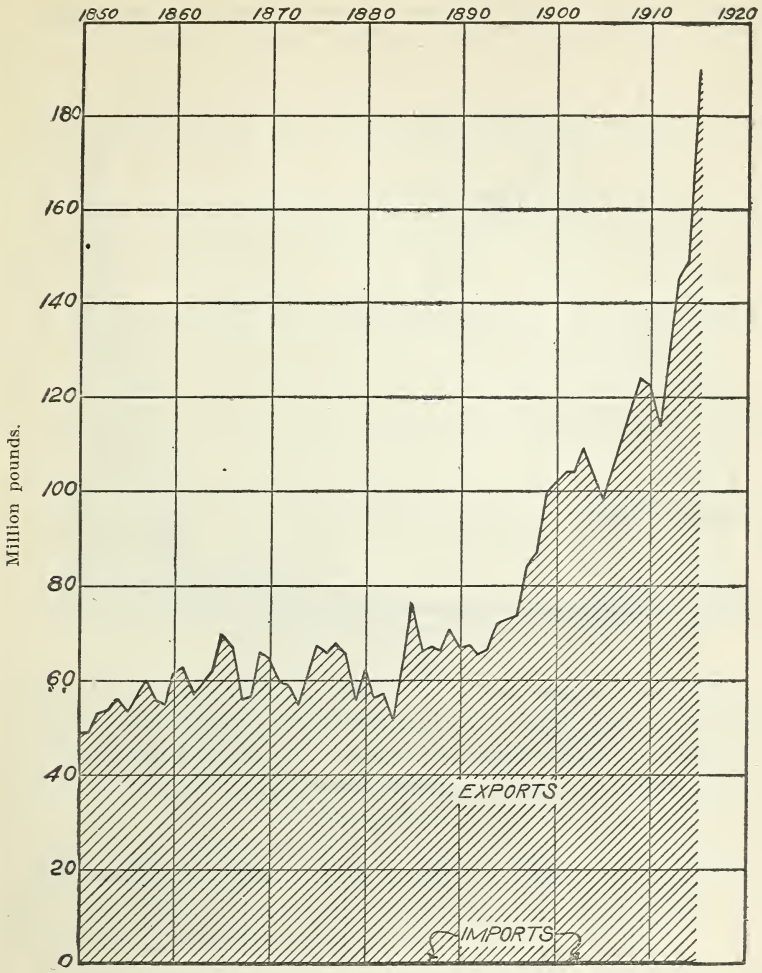

FIG. 13.—The Netherlands (Holland). Cheese trade.

The trend of the Netherlands cheese-export trade is one of strong upward tendency. In 1900 the Netherlands passed the 100-million-pound mark, and since then has made a further gain in exports, exceeding the total gain in the half century preceding.

The cheese made for export is mostly of the Edam and Gouda types, although in late years considerable Cheddar is made. The exports are widely distributed.

The Netherlands import-cheese trade is comparatively small, usually amounting to much less than 1 per cent of her exports. As the Low Countries have been noted as an important dairy section for at least 1,000 years, it is not surprising that exports of cheese as far back as 1850 greatly exceeded those of any other country.

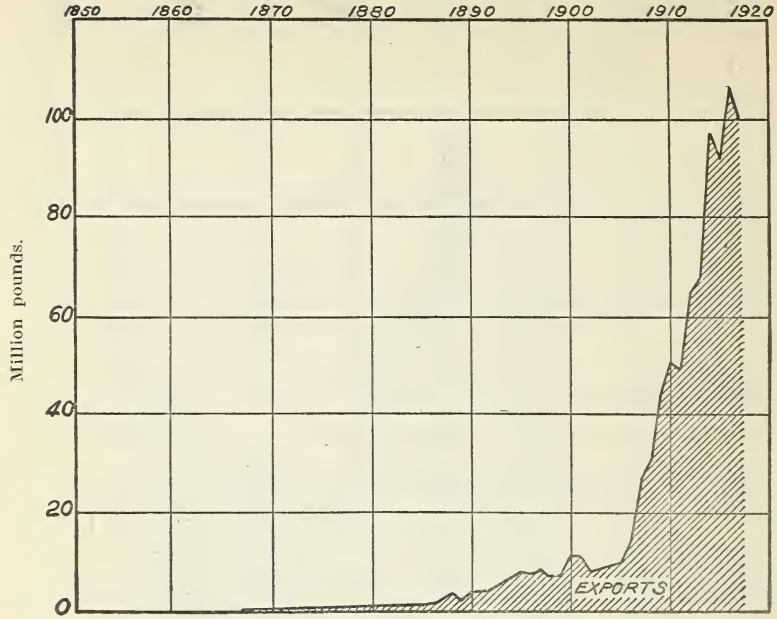

FIG. 14.—New Zealand. Cheese trade.

New Zealand's cheese trade is almost entirely an export business and has developed rapidly within the last 15 years, simultaneously with the decline of the Canadian trade. The United Kingdom is the principal market for New Zealand cheese, which is of the Cheddar type and in demand by the British trade.

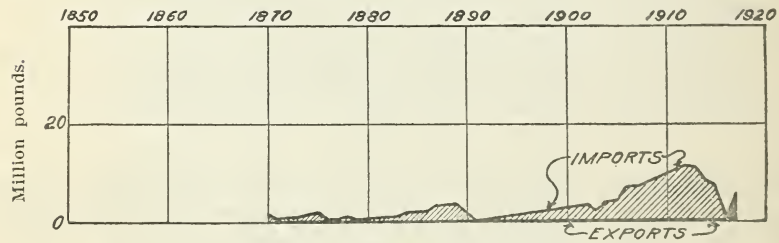

FIG. 15.—Argentina. Cheese trade.

Until about 1917, when the Argentine exports of cheese increased rapidly, the consumption in that country was about twice the cheese production. In 1915 the net imports were more than 7 million pounds, but in 1917 there was a net export of more than 6 million pounds. The remarkable change in Argentina's cheese trade, due to war prices and conditions, is graphically shown in the chart. While an increased export is significant, Argentine cheese constitutes at the present time a very small part of the total world cheese trade.

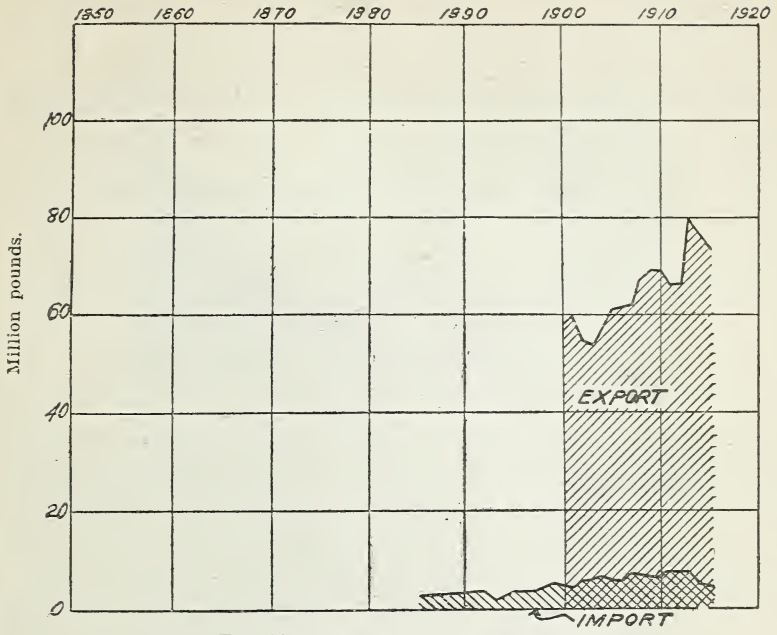

FIG. 16.—Switzerland. Cheese trade.

From the limited available records of the cheese industry in Switzerland there appears to be a condition of fair stability in the import trade, with a general upward trend of exports. The principal cheese made in that country is Emmental, commonly known in the United States markets as Swiss cheese. This type of cheese is not made for export in any considerable quantity by other countries. The cheese imported by Switzerland consists mainly of varieties not made in that country.

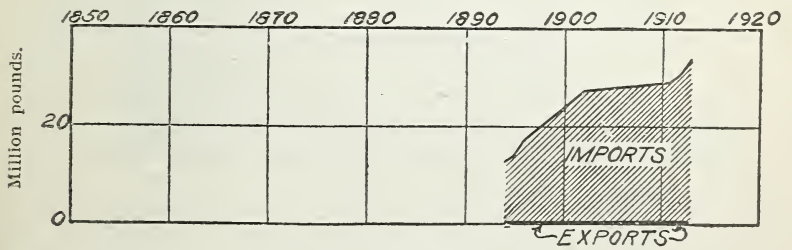

FIG. 17.—Belgium. Cheese trade.

Belgian exports of cheese have been very small for the entire period of record. The imports from France, the Netherlands, and Switzerland exceeded 25 million pounds annually for more than a decade prior to the war.

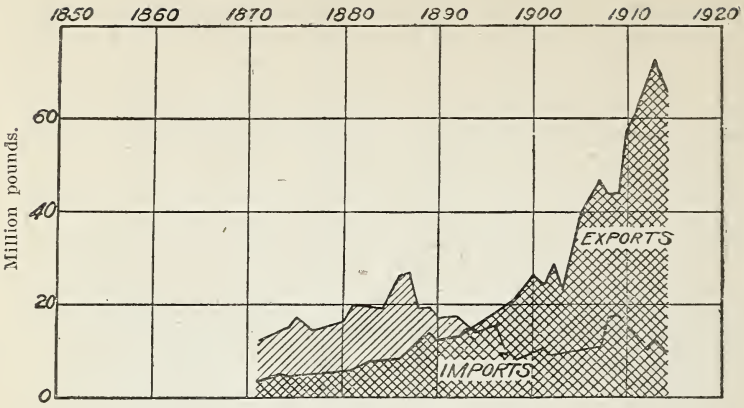

FIG. 18.—Italy. Cheese trade.

According to an official estimate by the Director of the Royal Experiment Station for cheesemaking for 1914, Italy produced about 560 million pounds of cheese, a larger amount than any other country, but as only incomplete figures were available they were not deemed adequate as a basis for a chart on production.

Italy was an importing nation with respect to cheese until about 1895. Since then exports have greatly exceeded imports and have made Italy one of the principal cheese-exporting countries of the world. There are more than 30 varieties of Italian cheese.

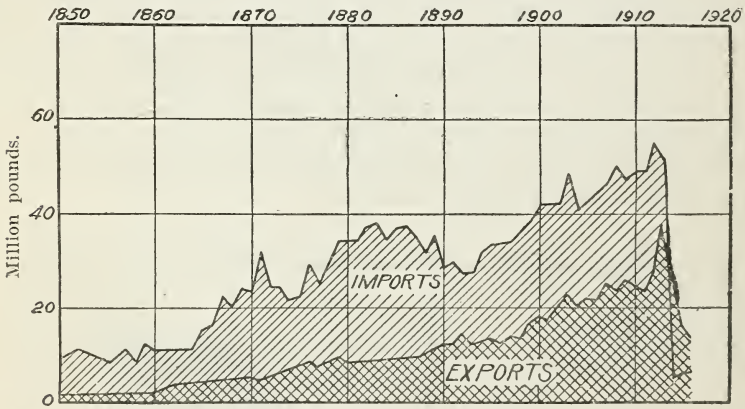

FIG. 19.—France. Cheese trade.

Unlike most European countries France imports cheese in large quantities, and her imports exceed the exports. The imports are principally from Italy, Switzerland, and the Netherlands. Until 1914 the trend toward increased cheese exports was strong and included Roquefort and Camembert cheese, which are considered among the finest cheeses made. The effect of war on France's cheese trade—both on imports and exports—is evident from the sharp decline in the last few years.

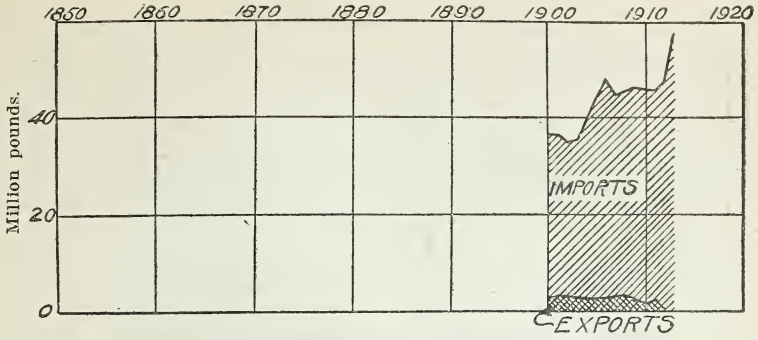

FIG. 20.—Germany. Cheese trade.

During the period just preceding the war imports of cheese into Germany far exceeded the exports. While there are a number of varieties of cheese made in Germany, the kinds in greatest demand are small, soft cheeses of which little is made for export. Münster, a hard cheese, is exported to some extent.

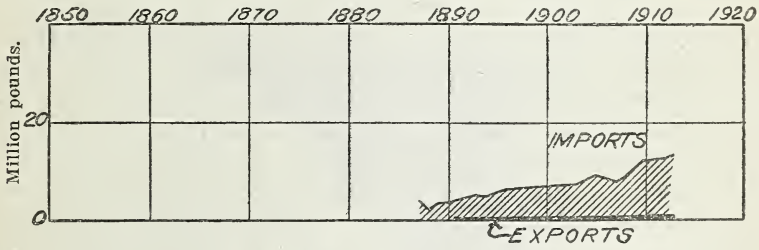

FIG. 21.—Austria. Cheese trade. (Not including Hungary.)

Since the date of earliest available records the imports of cheese into Austria have exceeded the exports.

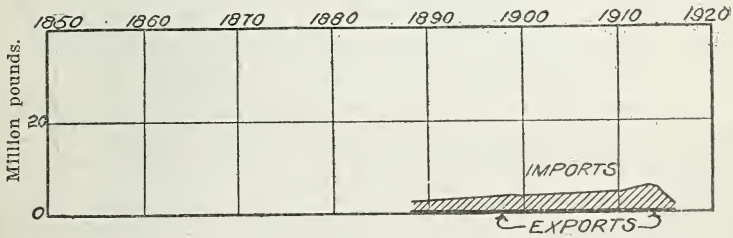

FIG. 22.—Spain. Cheese trade.

The cheese trade in Spain is small compared with the trade in other countries, and the imports are in excess of the exports. In general, dairying has been developed but little in that country.

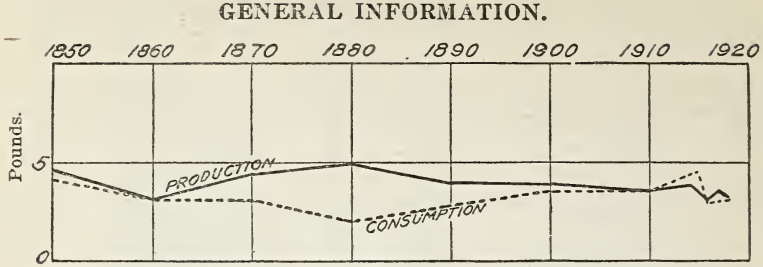

FIG. 23.—United States. Per capita production and consumption.

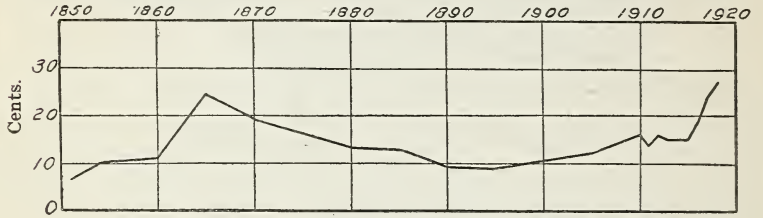

FIG. 24.—Wholesale prices of cheese. New York market.

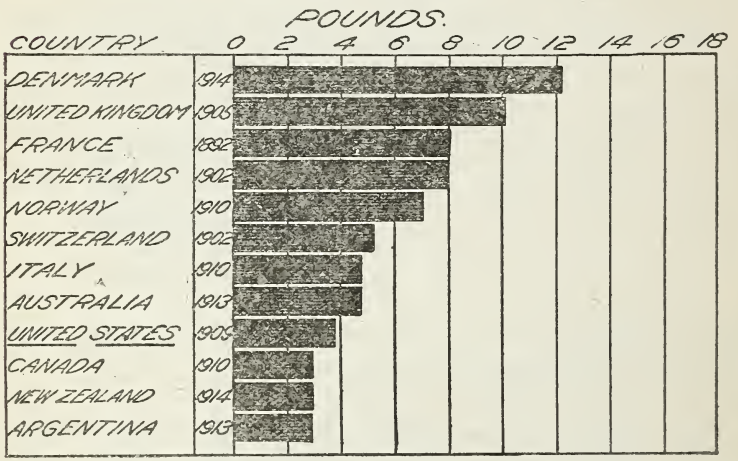

FIG. 25.—Per capita consumption of cheese in various countries.

It will be observed in figure 23 that the production per capita has been above that of consumption from 1850 to 1910; since 1910 the consumption has exceeded the production up to the time of the war, when the production again exceeded the consumption. The most noticeable feature is the small quantity per person that has been consumed annually for the entire period.

The prices[1] charted in figure 24 are for the highest grade of Cheddar cheese on the New York market. To the advance in price about the years 1860 to 1865 is attributed much of the stimulation

[1] Prices shown in this circular are in terms of United States currency, which should be considered in making comparisons with information of similar character, sometimes expressed on a gold basis.

which the cheese industry received during the Civil War. This demand for cheese, both for home and abroad, together with the "factory system," naturally caused an increase in production and exports. The price of cheese declined from 1870 to 1897, when, coincident with the advance in price of many other foods, it began again to advance. During the European war the price of cheese increased rapidly and in 1919 reached the highest point of record.

Of 12 important countries shown in figure 25, from which dependable figures on cheese consumption have been obtained, the United States ranks ninth. Our average consumption of cheese for 1909 was less than 4 pounds per capita annually. Since 1850 it has varied between 2 and 4½ pounds, which incidentally is less than one-third of our average butter consumption.

COMMENTS AND CONCLUSIONS.

In the last half century the production of farm-made cheese in the United States has practically ceased. Factory cheese, which has taken its place, now exceeds 300 million pounds annually, about three times the highest figure ever reached by cheese made on farms.

The factory system of cheesemaking, developed in the United States, has stimulated cheese production in practically every country. The United States in recent years has consumed practically all the cheese it produced and in addition, just before the war, was importing about one-tenth of the exports from all other countries.

In 1880 the United States was the greatest cheese-exporting country in the world. In 1918 there were five countries each of which exceeded the United States in exports.

The cheese exported by European countries is of special types, while that from Canada, United States, Argentina, New Zealand, and Australia is largely of the Cheddar type.

A relatively small quantity of "filled" cheese made in the United States between 1870 and 1905 and sold as genuine cheese practically destroyed the confidence of European purchasers in the quality of cheese from the United States.

Countries exporting those varieties of cheese which are especially used for savory purposes appear to have enjoyed a continuous export demand. The variations in their exports are not so marked as in those that made the Cheddar type of cheese.

The annual cheese consumption in the United States has been less than 4 pounds per capita during practically all the time of record, and has never reached 5 pounds per capita as a national average.

For the most part the per capita consumption of cheese has been less in the countries using only a few varieties than in those where numerous varieties are used.

PRINCIPAL REFERENCES.

Census reports, yearbooks, official agricultural statistics, and commerce and navigation reports of various countries; Bureau of Internal Revenue reports, United States Treasury Department; and International Crop Reporter and statistics of the International Institute of Agriculture, Rome, Italy.

PUBLICATIONS OF THE U. S. DEPARTMENT OF AGRICULTURE RELATING TO DAIRY PRODUCTS.

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